



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,321	06/30/2005	Tsuyoshi Himori	043890-0742	1137
20277 7590 08/10/2007 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096				
			EXAMINER LAM, CATHY FONG FONG	
			ART UNIT 1775	PAPER NUMBER
			MAIL DATE 08/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/541,321

Applicant(s)

HIMORI ET AL.

Examiner

Cathy Lam

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) 15-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 1775

In view of the amendment and remarks filed on May 22, 2007, the objection to the Drawing and the 112 and art rejections have been withdrawn. The pending claims however continue to be unpatentable as following:

***Election/Restrictions***

1. This application contains claims 15-21 are drawn to an invention nonelected with traverse in the reply filed on January 18, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 102/103***

2. Claims 1-6 and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Arrington et al (US 6586683).

Arrington discloses a printed circuit device comprised of a substrate (110), a plurality of electrode pads (130,135,140,150) and wiring traces (145) (col 3 L 9-12).

The electrode pads and the wiring traces (145) are formed from copper (col 3 L 7). The substrate (10) can be an organic insulating board or a ceramic substrate (col 3 L 3 & L 6-7).

A copper oxide layer (190) is formed onto the all exposed surfaces of the electrode pads and wiring traces (145) (col 3 L 20-23 & Fig. 2).

The prior art shows that there is no copper oxide layer coated between the electrodes pads. The examiner however is taking the position that the prior art has had the copper oxide coating on the substrate surface removed or purposely not coated onto the substrate surface.

Furthermore, the prior art teaches a copper oxide layer is directly formed onto wiring traces and electrode pads, thus without the need to oxidize the metal film. The examiner is taking the position that the claimed metal oxide layer is the final product of the metal film and that Arrington's copper oxide layer is the final product of the present invention.

***Claim Rejections - 35 USC § 103***

3. Claims 7-8, 10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arrington et al (US 6586683).

Arrington teaches a printed circuit device comprised of electrode pads and wiring traces formed onto an insulating substrate (110). Arrington also teaches a copper oxide layer is coated onto the electrode pads and wiring traces.

The prior art however does not teach the wiring traces and electrode pads are made of Ag or Ag based alloy as in claims 7-8. The prior art is also silent about the thickness of the copper oxide layer. The prior art is silent about having some part of the wiring traces or electrode pad and the substrate not covered by copper oxide layer.

In view of Arrington's teaching, one skill in the art would choose silver or silver-noble metal alloy as the conductive pattern because silver is well known to be used as conductive material in printed circuit boards.

Regarding the thickness of the oxide layer, the examiner is taking the position that one skill in the art would easily determined a workable thickness because finding such thickness involves only routine experimentations.

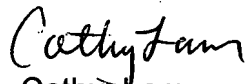
Art Unit: 1775

Regarding some uncovered conductive patterns and substrate, the examiner is taking the position that choosing an area that needs to be protected or not protected is just a matter of design choice. One can design the conductive pattern with an oxide layer so as to be used for component bonding or soldering.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Cathy Lam  
Primary Examiner  
Art Unit 1775

cfi  
August 03, 2007